

REMARKS

Claims 1, 4-14, 19 and 22-24 are pending in the present application. Claims 22-24 are withdrawn from consideration as being drawn to a non-elected invention. Claims 1, 4-14 and 19 have been rejected.

Claim Rejections - 35 USC §102 and §103

1. Examiner's position

The Examiner states that Claim 20 is rejected under 35 U.S.C. 102(b) as being anticipated by Oenbrink et al (US 6,538,073, hereinafter "Oenbrink"). This rejection is now moot since claim 20 has been cancelled.

Further, the Examiner states that Claims 1-10, 12, 14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al (US 4,410,595, hereinafter "Matsumoto") in view of Oenbrink. Claims 2 and 3 have been cancelled.

Moreover, the Examiner points out that Claims 1-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto in view of Goetz et al. (US 5,254,620, hereinafter "Goetz") and Oenbrink. As noted above, claims 2 and 3 have been cancelled.

The remaining rejections are respectfully traversed. Reconsideration and withdrawal thereof are requested.

2. Cited references

(2a) Oenbrink discloses and claims the following invention:

1. A graft copolymer comprising, a) from 0.5 to 25% by weight, based on the graft copolymer, of a polyamine having at least 11 nitrogen atoms and a number-average molecular weight (Mn) of at least 500 g/mol; b) grafted on a) a substantially equimolar combination of a diamine and a dicarboxylic acid as polyamide-forming monomers, and c) from 0.01 to about 1.2 mol % of a tricarboxylic acid based on the total amount of the polyamide-forming monomers. ...

3. The graft copolymer as claimed in claim 1, wherein the amino group concentration of the copolymer is from 100 to 2500 mmol/kg and the acid number of said copolymer is below 40 mmol/kg.

Oenbrink contains the following description.

If desired, use may also be made, as regulators, of aliphatic, alicyclic, aromatic, arylalkyl and/or substituted monocarboxylic acids having from 3 to 50 carbon atoms, e.g. lauric acid, unsaturated fatty acids, acrylic acid or benzoic acid.(column 3, lines 47-51)

The novel graft copolymers may be used for molding compositions intended for injection molding or extrusion. They may also be used as a blend component for modifying performance characteristics, or as hot-melt adhesives. (column 4, lines 36-39)

(2b) Goetz discloses the following invention:

1. A process for preparing a thermoplastic molding composition, which process comprises mixing
 - A) from 0.5 to 5% by weight of a thermoplastic polyester elastomer and
 - B) from 0 to 50% by weight of fibrous or particulate fillers or mixtures thereof into a melt of
 - C) from 40 to 99.5% by weight of a polyamide pre-polymer having a viscosity number of from 40 to 80 ml/g and subsequently post condensating in the solid phase.

Goetz contains the following description.

The thermoplastic molding compositions of the present invention are notable for a balanced range of properties, in particular for good flowability and flame resistance. They are suitable for producing fibers, films and moldings. (column 9, lines 57-61)

(2c) Matsumoto claims the following invention:

1. A laminate having at least two laminae bonded to each other; at least one of the laminae being comprised of a thermoplastic resinous composition consisting essentially of, based on the weight of the resinous composition,

- (a) 5 to 70% by weight of a thermoplastic polyurethane elastomer, and
- (b) 30 to 95% by weight of a modified polyolefin which is an olefin polymer having grafted thereon 0.005% through 5% by mole of maleic acid or maleic anhydride per mole of the recurring unit in the olefin polymer, and

the other of the laminae being comprised of at least one material selected from the group consisting of vinyl chloride polymer resins, vinylidene chloride polymer resins, thermoplastic polyester resins, ethylene/vinyl alcohol copolymer resins, polyamide resins, polyacrylonitrile and nitrile copolymer resins comprising at least 50% by weight of units derived from an unsaturated nitrile, polystyrene and styrene copolymer resins, polymethyl methacrylate and acrylic or methacrylic acid ester copolymer resins, polyurethane resins, olefin polymer resins, polyacetal resins, polyvinyl acetal resins, polycarbonate resins, polyphenylene oxide resins, polysulfone resins, epoxy resins, phenol-formaldehyde resins, unsaturated polyester resins, melamine-formaldehyde resins, urea-formaldehyde resins, natural and synthetic rubbers, cellulosic materials, cement, glass and other ceramic materials and metals.

Matsumoto contains the following description concerning the "polyamide resins".

The term "polyamide resins" herein used refers to thermoplastic polymeric materials, the backbone chains of which comprise amide linkages as the main linkage. The polyamide resins include, for example, nylon 6, nylon 66, nylon 10, nylon 11, nylon 12, nylon 610, polymetaxylylene adipamide and polymetaxylylene sebacamide. The laminae of these polyamide resins may be either undrawn or uniaxially or biaxially drawn. (column 8, lines 49-56)

3. Comparison of the present invention with the cited references

(a) Claims 1, 4-14 and 19

The Examiner states

that "... it would have been obvious to one of ordinary skill in the art to use Oenbrink's polyamide containing a polyamine to ensure good adhesion to (the) polyurethane elastomer substrate taught by Matsumoto." (paragraph 10),

that "it would have been obvious to one of ordinary skill in the art to use Goetz's teaching of a blend of polyester and polyamide oligomer with Oenbrink's teaching of a

polyamine-containing polyamide to arrive at a covering for Matsumoto's polyurethane substrate, wherein the covering would have improved flowability and adhesion to the substrate." (paragraph 31), and

that "Oenbrink teaches the use of alicyclic monomers ... it would have been obvious to one of ordinary skill in the art to vary the amount of alicyclic monomers, including over the presently claimed very broad range, to control the amount of amino groups present." paragraphs 16 and 37).

However, there is no motivation for combining Matsumoto with Oenbrink and Goetz. Oenbrink and Goetz do not disclose and/or indicate applicability to the laminae with the other resin. In particular, Oenbrink and Goetz are silent on the relationship between a thermoplastic polyurethane elastomer and a polyamide component having an alicyclic ring or an amino group-containing compound such as a polyamide oligomer. Further, the problems to be solved as disclosed in Matsumoto are not common to those in Oenbrink and Goetz. That is, since Oenbrink and Goetz disclose only the novel graft copolymers and the thermoplastic molding composition, the Examiner's rejections are based on hindsight. Hindsight is not a basis for a rejection of the claims. That is, there is no motivation, teaching or suggestion for combining Matsumoto with Oenbrink and Goetz to arrive at the present invention.

In addition, since the "polyamine" in Oenbrink is bonded to a polyamide by graft polymerization, the graft copolymer has not yet contained the free polyamine. That is, the polyamine is only a co-monomer in the copolymer. Further, the "polyamide oligomer" of Goetz is "post" condensated after being mixed with the thermoplastic polyester elastomer. Therefore, the thermoplastic molding composition only contains a high-molecular weight of polyamide which is obtained by post-condensating of the polyamide oligomer and has not yet contained the free polyamide oligomer. As stated, Oenbrink and Goetz have no concept for combining the resin with the polyamine or the polyamide oligomer.

Moreover, it is true that Oenbrink discloses alicyclic monomers, however, Oenbrink does not teach the significance of a combination of alicyclic monomers with a specific concentration of an amino group. Specifically, Oenbrink only discloses that since the polyamine

has secondary amino groups on the main chain in a high proportion, the graft copolymer also has a high proportion of amino groups (containing secondary amino groups).

Therefore, even if Matsumoto were to be combined with Oenbrink and Goetz, the present invention would not be obvious to one skilled in the art.

(b) Claim 20

As noted above, claim 20 has been cancelled. Thus, the rejection of claim 20 is moot.

(c) Unexpected advantages

According to the present invention, unexpected advantages can be obtained. That is, it cannot be understood nor is it obvious from the references how the bonded strength between a non-urethane resin member and a thermoplastic polyurethane resin member can be improved.

On the other hand, in the present invention, since a non-urethane thermoplastic resin contains a polyamide component having an alicyclic ring and/or an amino group-containing compound and has an amino group in a concentration of not less than 10 mmol/kg, the molded composite article comprising a polyurethane resin member and the non-urethane thermoplastic member ensures having a significantly improved bonded strength between both resin members. Moreover, independently of the species of thermoplastic polyurethane resin to be used, both of the resin members can be firmly bonded with each other. These advantages are also evidenced by the Examples set forth in the description in the present application.

Therefore, the subject matter of the claims cannot be motivated or taught from the cited references, whether considered alone or in combination.

Claim Rejections - 35 USC §112

Claims "1-20" (should be claims 1, 4-14 and 19) have been rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This rejection is also respectfully traversed. Reconsideration and withdrawal thereof are requested.

Claims 1 and 7 have been amended to overcome the objections raised by the Examiner. Claim 20 has been cancelled. Therefore, the rejection under 35 USC 112, second paragraph, has been overcome and should be withdrawn.

Should there be an outstanding matter that needs to be resolved in the present application, the Examiner is respectfully requested to contact Raymond C. Stewart, Registration No. 21,066, at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

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